UNIVERSITY OF TASMANIA

Longitudinal profiling of Mild Cognitive Impairment subtypes

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Declaration of Originality

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Statement of Co-authorship

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Located in chapter 4
Candidate was the primary author (70%) and with author 2 contributed to the idea, its formalisation and development, refinement and presentation (30%)

Paper 2, Lowered performance in working memory and attentional sub-processes are most prominent in multi-domain amnestic mild cognitive impairment subtypes
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Paper 3, Exploring the validity of Mild Cognitive Impairment (MCI) subtypes: Multiple-domain amnestic MCI is the only identifiable subtype at longitudinal follow up
Located in chapter 6
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Paper 4, The learning profile of persistent Mild Cognitive Impairment (MCI): A potential diagnostic marker of persistent amnestic MCI
Located in chapter 7
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Paper 5, Reducing false positive MCI diagnoses with neuropsychological assessment
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Statement of Ethical Conduct

The research associated with this thesis abides by the international and Australian codes on human and animal experimentation, the guidelines by the Australian Government's Office of the Gene Technology Regulator, and the rulings of the Safety, Ethics and Institutional Biosafety Committees of the University.

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Publications from thesis

Peer reviewed articles

Klekociuk, S.Z. & Summers, M.J. (2013). The self-fulfilling prophecy of episodic memory impairment in mild cognitive impairment (MCI): Do episodic memory deficits identified at classification remain evident when later examined with different memory tests? *Neurology Research International*. doi: 10.1155/2013/437013.

Klekociuk, S.Z. & Summers, M.J. (2014a). Prominent working memory and attention dysfunction in multi-domain amnestic MCI. *Psychogeriatrics*, *63-71.* doi:10.1111/psyg.12042

Klekociuk, S.Z. & Summers, M.J. (2014b). Exploring the validity of Mild Cognitive Impairment (MCI) subtypes: Multi-domain amnestic MCI is the only identifiable subtype at follow up. *Journal of Clinical and Experimental Neuropsychology*, *1-12.* doi:10.1080/13803395.2014.890699

Klekociuk, S.Z. & Summers, M.J. (2014c). The learning profile of persistent mild cognitive impairment (MCI). A potential diagnostic marker of persistent amnestic MCI. *European Journal of Neurology*, *470-477.* doi:10.1111/ene.12333.

Papers currently accepted for publication pending revisions:

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Abstracts

Klekociuk, S.. & Summers, M.J. (2012). Longitudinal deficits to executive functioning: 12 month follow up of mild cognitive impairment subtypes. *The Abstracts of the 18th Annual Conference of the APS College of Clinical Neuropsychologists; Combined Abstracts of 2012 Psychology Conferences*, p.178.

Klekociuk, S.Z. & Summers, M.J. (2012). Longitudinal profiling of mild cognitive impairment subtypes. *Alzheimer's & Dementia, 8 (4), Suppl 1*, P555.

Papers and Poster Presented at Conferences

2012:

Klekociuk, S.K., & Summers, M.J. (2012). *Longitudinal profiling of mild cognitive impairment subtypes*. Poster presented at the Alzheimer's Association International Conference, 14-19 July 2012, Vancouver, British Columbia

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Abstract

Mild Cognitive Impairment (MCI) was originally conceptualized as a condition that manifested prior to the onset of clinical dementia, particularly Alzheimer's disease. However, longitudinal studies show that MCI has an unstable course and may lead to various outcomes including dementia, but also stability of cognitive deficits or recovery to age appropriate levels of functioning. As a result, the status of MCI as a genuine diagnostic entity remains questionable. The aim of the present thesis was to examine the validity of the MCI concept by tracking groups of individuals classified into one of the MCI subtypes and to monitor their neuropsychological profiles over time. To avoid previous criticisms of circularity, participants were classified as MCI on a neuropsychological test battery and then reassessed longitudinally using an alternate battery of neuropsychological tests. At each stage of testing, participants were assessed on a comprehensive neuropsychological test battery tapping the cognitive domains implicated in MCI. Findings from this thesis indicate that multiple domain amnestic MCI may be the most valid subtype of MCI due to consistently poor performance over time on a range of neuropsychological measures. Results also demonstrate that those who are likely to remain on the MCI spectrum can be differentiated from healthy older adults using reliable and valid measures of sustained attention, semantic memory, verbal episodic memory, visual and verbal working memory, selective attention and strategy use. Despite these findings, evidence from this thesis indicates that existing MCI clinical criteria lack sufficient sensitivity and specificity. Although the concept of MCI remains useful, it cannot be considered a clinical diagnostic entity. Future research should prioritize the observation of those presenting with a multiple domain amnestic profile as these individuals may have the poorest prognosis. Further, studies must utilize comprehensive testing protocols to increase the sensitivity and specificity of identifying those with genuine subclinical impairments.

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